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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/766,814

01/22/2001

Joseph Fjelstad

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CIP

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03/31/2003

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EXAMINER

BOSWELL, ALAN M

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/766,814

Applicant(s)

FJELSTAD ET AL.

Examiner

Alan M Boswell

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/22/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 1-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 52-55, 58, 61-70, 72 and 74 is/are rejected.
- 7) ☒ Claim(s) 56, 57, 59, 60, 71 and 73 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3729

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of species IJ in Paper No. 13 is acknowledged.
2. Claims 48-51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 11.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 52-55, 58, 62-66, 72 and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5296737 to Nishimura.

Nishimura teaches providing a connection component 4 having a first surface 3b including conductive leads 3b and contacts 2b, the conductive leads 3b having terminal end 4 permanently secured to secured to the connection component 4 (see col. 4, lines 46-48) and tip ends 2b releasable secured to said connection component 4 (see col. 4, lines 45-48);

Art Unit: 3729

juxtaposing with the first surface 3b of the connection component 4 and attaching the contacts 2b of the first microelectronic element 1b to tip ends 2b of the leads 3b;

attaching a second microelectronic having contacts 2a to a back surface of the second microelectronic element 1a face away from the first surface 3b of the connection component 4; after the wire bonding step, moving the first and second microelectronic elements 1a-b through a preselected displacement relative to the connection so as to deform the bonding wires and leads 3a-b (see col. 8, lines 56-62 and Fig. 12 respectively).

Regarding claim 53, Nishimura teaches the tip ends 2b of the top surface of the connection component 4 and bending the leads into a substantially S-shaped configuration 3b (see Fig. 12).

Regarding claim 54, Nishimura teaches bonding wires flex and bend during the moving step for maintaining an electrical connection between the contacts of the second microelectronic element 1a and the contacts of the connection component 4 (see col. 8, lines 56-62 and Fig. 12 respectively).

Regarding claim 55, Nishimura teaches a curable liquid material 5 between the top surface of the connection component 4 and the contact bearing face 2b of the first microelectronic element 1b (see Fig. 12 and col. 5, lines 10-25).

Regarding claim 58, Nishimura teaches encapsulating the first and second microelectronic elements 1a-b, the contacts of the second microelectronic elements 2a and the conductive wires 3a-b with the curable liquid material 5 (see Fig. 12).

Art Unit: 3729

Regarding claims 62,63 and 65, Nishimura teaches the first and second microelectronic element includes a semiconductor wafer (see col. 3, line 56-57 and Fig.12).

Regarding claim 64, Nishimura teaches the conductive wires 3a have first ends bonded to one of the second microelectronic element 1a and second ends bonded to the contacts of the connection component 4 (see Fig. 12).

Regarding claim 66, Nishimura teaches attaching rear surfaces of the first and second microelectronic elements (1a-b) to one another (see Fig. 12).

Regarding claim 72, Nishimura teaches electrically interconnecting one or more of the leads 3b of the connection component 4 with one or more the contacts 2b of the of the connection component (see Fig. 12).

Regarding claim 74, Nishimura teaches microelectronic assembly made according to the method of claim 52.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3729

6. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura in view of IBM Technical Disclosure Bulletin Volume Number 24, Issue number 12, page number 6371.

Nishimura teaches attaching the rear surfaces of the first and second microelectronic elements but fails to teach providing an adhesive between.

IBM tech disclosure bulletin teaches providing an adhesive between the rear surfaces of the first 10 and second 12 microelectronic elements (see Figure) for the purpose of bonding the surfaces of the microelectronic elements together.

However, it would have been obvious to one of ordinary skill in the art at the time to modify the invention of Nishimura in light of the IBM Tech Disclosure Bulletin in order to bond the surfaces of the microelectronic elements together.

7. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura in view of IBM Technical Disclosure Bulletin Volume Number 24, Issue number 12, page number 6371 further in view of US Patent No. 5620928 to Lee.

Nishimura and IBM teach an adhesive but fail to a thermally conductive adhesive.

Lee teaches a thermally conductive adhesive (see col. 4, lines 33-35) for the purpose of providing a stable substrate for the assembling package.

However, it would have been obvious to one of ordinary skill in the art at the time to modify the invention of Nishimura and IBM Tech Disclosure Bulletin in light of the Lee in order to provide a stable substrate for the assembling package.

Art Unit: 3729

8. Claims 61 and 69-70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura in view of US Patent No. 5659952 to Kovac.

Nishimura teaches the above limitations but fails to teach connection component comprises a flexible dielectric sheet having the first surface and a second surface remote therefrom.

Kovac teaches connection component 150 comprises a flexible dielectric sheet 100 having the first surface and a second surface remote therefrom (see Fig. 1) for the purpose of holding the terminals coplanar with one another.

However, it would have been obvious to one of ordinary skill in the art at the time to modify the invention of Nishimura in light of the Kovac in order to hold the terminals coplanar with one another.

Regarding claims 69-70, Kovac teaches and connection component includes one or more terminals accessible at the second surface therefore, the terminals being electrically interconnected with permanently secured ends of the leads of the contacts of the connection component and attaching one or more conductive masses to the terminals of the connection component (see Fig. 1).

Allowable Subject Matter

9. Claims 56,57,59,60,71 and 73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art in the method making microelectronic packages.

US Patent No. 5637925 to Ludden

Telephone inquiries regarding the status of applications or other general questions, by persons entitled to the information, should be directed to the group clerical personnel. In as much as the official records and applications are located in the clerical section of the examining groups, the clerical personnel can readily provide status information. M.P.E.P. 203.08. The Group clerical receptionist number is (703) 308-1148.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan M Boswell whose telephone number is (703) 305-0308. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (703) 308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3579 for regular communications and (703) 305-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2572.

Art Unit: 3729

* Other helpful telephone numbers are listed for applicant's benefit.


Allowed Files & Publication	(703) 308-6789 or (888) 786-0101
Assignment Branch	(703) 308-9723
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Drawing Corrections/Draftsman	(703) 305-8404/8335
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If the information desired is not provided above, or a number has been changed, please call the general information help line below.

Information Help line	1-800-786-9199
Internet PTO-Home Page	http://www.uspto.gov

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March 24, 2003



A. DEXTER TUGBANG
PATENT EXAMINER